GOVERNMENT OF INDIA
ATOMIC ENERGY
LOK SABHA

UNSTARRED QUESTION NO:1746
ANSWERED ON:26.07.2017
Food and Seed Irradiations
Biju Shri Parayamparanbil Kuttappan;Reddy Shri Konda Vishweshwar

Will the Minister of ATOMIC ENERGY be pleased to state:

(a)whether the use of radiation in agriculture has resulted in developing improved varieties of seeds resulting in increase in the Gross Domestic Product (GDP) of the country and if so, the details thereof;

(b)the different varieties of seeds that have been improved by the Department using this technology;

(c)whether these seeds have any hazardous effect on the human health and if so, the details thereof;

(d)the precautions that are being taken to avoid these health hazards; and

(e)the details of food irradiation centres in the country, State/UT-wise along with the steps taken by the Government to build more such centres ?

Answer

THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (Dr. JITENDRA SINGH) :

(a)Yes Sir, Bhabha Atomic Research Centre (BARC) is actively working in this area. Using radiation induced mutagenesis along with cross breeding, BARC has developed several varieties of oilseeds, pulses, rice and jute, which have been released and notified for commercial cultivation across the country. The major desirable traits in these crops include higher yield, seed size, improved agronomic and quality traits, early maturity and resistance to biotic and abiotic stresses. Several of these varieties enjoy high patronage among the farming community and are extensively cultivated in the country and contribute substantially to the total agricultural production in the country. BARC is also involved in breeder seed multiplication of its released varieties in the case of crops such as ground nuts and pulses.

According to IMF, GDP is a monetary measure of the market value of all final goods and services produced in a period (quarterly or yearly). Viewed in this context, the improved varieties of crops have substantially contributed to the GDP of the country.

(b)Using mutation (and conventional) breeding, Department of Atomic Energy (DAE) has developed 42 new varieties of crops. These varieties include oilseeds (groundnut, mustard, soybean and sunflower), pulses (urdbean, mungbean, pigeonpea, cowpea), rice and jute.
(c)&(d) Mutation breeding through nuclear radiation is mostly done using gamma rays or other ionizing radiations such as electron beam. The method does not render the irradiated material radioactive; it also does not involve insertion of foreign gene into the plant being improved. Irradiation only increases the rate of mutation inside target cells. Mutation is a natural process and, therefore, acceleration of the process using a radiation source is a widely accepted method of producing variability in the population. Plants showing favourable traits are selected and cultivated, ultimately culminating in the production of new varieties. The plants are also extensively tested for various parameters, including nutritional quality of the food, before they are released. Therefore, there is no health hazard to humans and animals that consume the food.

(e) List of Food Irradiation Plants in the country:

S. No. Name of the Plant Purpose State/UT Status/ Remarks

1Radiation Processing Plant, BRIT, Vashi, Navi Mumbai − 400075 Food and allied products Maharashtra Commissioned in 2000

2*KRUSHAK Irradiator, Lasalgaon, Nashik − 411037, Maharashtra Food Products Maharashtra Commissioned in 2002

3M/S A.V. Processors Pvt. Ltd., Ambernath (E), Thane, Maharashtra Food & Medical Products Maharashtra Commissioned In 2005

4*M/S Agrosurg Irradiators, Vasai, Thane, Maharashtra Food, Packaging & Medical Products Maharashtra Commissioned In 2008.

5*M/S Hindustan Agro Co-Operative Ltd., Rahuri, Ahmednagar, Maharashtra Onion & Other Agricultural Produces Maharashtra Commissioned in 2012

6*Maharashtra State Agricultural Mktg. Board, Navi Mumbai, Maharashtra Food Products Maharashtra Commissioned in 2015

7M/S Universal Medicap Ltd., Vadodara, Gujarat Food & Medical Products Gujarat Commissioned In 2005.

8*M/S Gujarat Agro Industries Corpn. Ltd, Bavla,Ahmedabad, Gujarat Food Products Gujarat Commissioned in 2014

9M/S. Microtrol, Bangalore, Karnataka Food & Medical Products Karnataka Commissioned In 2006

10M/S Innova Agri Bio Park Ltd., Malur, Dist. Kolar, Karnataka Food & Medical Products Karnataka Commissioned In 2011

11M/S Gamma Agro Medical Processing, Hyderabad, Telangana Food & Medical Products Telangana Commissioned In 2008.

12*M/S Jhunsons Chemicals Pvt Ltd., Bhiwadi, Rajasthan Agro, Medical & Packaging Products Rajasthan Commissioned In 2010

13M/S Organic Green Foods Ltd., Dankuni, Kolkata, West Bengal Food, Packaging & Medical Products West Bengal Commissioned In 2004

14M/S Impartial Agro Tech (P) Ltd., Unnao, Lucknow, Uttar Pradesh Food & Medical Products Uttar Pradesh Commissioned in 2014

15M/s Aligned Industries, Dharuhera, Rewari, Haryana Food Products Haryana Commissioned in 2015

*Facility for low dose irradiation (for mango, Onion, Potato etc.)

The setting of more such facilities will depend upon the involvement of entrepreneurs. The process of setting a facility takes about 2-3 years. This would include from site selection, clearances, construction of the facility and in obtaining necessary documentations and licenses. Bhabha Atomic Research Centre (BARC) and Board of Radiation & Isotope Technology (BRIT) can provide the scientific and technical assistance.

*****